

A PHOTOCOPIER AS AN AID DRAWING PLANTS

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This paper describes a technique to reproduce plant forms as silhouettes or line drawings with the aid of a photocopier. The method is accurate and acceptable where life-sized or reduced illustrations can be used. It is not generally satisfactory if enlargement of plant parts is required to show detail.

A living plant is laid on the platen of a photocopy machine such as the Xerox Model 2400. Herbarium specimens are seldom satisfactory for they are shrunken and often folded on the sheet. Plants normally do not lie flat so the cover is left open and the specimen covered with a sheet of bond paper; for white flowers a black cover will give better contrast. Plants that are larger than the machine's maximum reproduction size are printed in sections, and the resulting sheets taped together to form a complete plant.

The copy is examined for areas where line details are not clear and these are touched up with a sharp pencil using the living plant as a guide. From this copy a black and white line drawing or silhouette is made, substituting other inflorescences, leaves or plant parts when necessary to form an attractive but accurate whole. The drawing is made on semi-transparent paper using a light table and drafting pens with medium to fine nibs; use of a magnifying light improves the quality of the work. Long fine lines can be drawn with a minimum of error by using short strokes with a fine nib. The completed drawing is then photographed and reduced to a suitable size.

This technique was first used to illustrate a popular pamphlet on common grasses. It produced attractive two-dimensional illustrations of the whole plant, including the root system. The illustrations were all reduced to the same scale as an aid to identification. Since several of them



From left to right: *Hordeum jubatum*, *Dicranum polysetum* (*D. rugosum*), *Cystopteris bulbifera* and *Aralia nudicaulis*. All illustrations reduced to one quarter of original plant size.

were in excess of four feet tall, a photographic reduction to one-eighth of the original size was necessary to fit the pages of the pamphlet. Despite the extreme reduction, in only two of the twenty-four drawings did the finest lines disappear and need retouching.

The technique has since been extended to reproduce silhouettes of ferns and outlines of other plants. These illustrations are as good as, if not better than original drawings; they are not an artist's impression but an actual reproduction with accurate proportions for a given specimen.

A further refinement is possible using a reducing photocopier, such as Xerox Model 7000. The black and white drawings (if not too large) are processed through the machine one or more times so that the plants appear as one-half or one-quarter of their original size. These reduced replicas are very useful in planning and laying out illustrated articles. They are also sufficiently clear for further reproduction when limited numbers of copies are required for a special project.

It is possible for one person to collect and photocopy enough suitable material for drawings of many trees, shrubs, herbs and larger mosses in one growing season. A factor to be considered, if many plants are to be handled, is the availability of a good photocopier near the source of vegetation. In summer, for instance, a delicate fern must be picked on a cool morning and copied at once; in cool weather small or sturdy plants can be kept for a few hours in a plastic bag, or sometimes overnight in a refrigerator.

There is probably little difference in time or cost between this method and making original drawings when a taxonomist (or his assistant) has some artistic ability. The effort and skill required to collect fresh material and ink the final illustrations is the same. The real advantage is that once the material has been gathered the art work can be completed at a convenient time and secondly, that

illustrations can be produced where an artist is not available or not within the budget.

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